

Assignment: 3**Due date: Friday - 24 April 2020 – 9:00 PM**

Course: Object Oriented Programming 2019/2020

Instructors: Dr. Sherin Moussa & Dr. Sally Saad



Ain Shams University
Faculty of Computer
& Information Sciences
2rd year

General instructions:

- 1) Submit **only** running code.
- 2) your program should contain only one package named with “*assignments_package*”
- 3) Put all your code in one .java file.

Note that:

- One .java file can consist of multiple classes with the restriction that only one of them can be public.
 - The name of the public class must be the same as the name of the .java file.
 - After completing your assignment solution, copy your .java file somewhere else and rename it as per rule 5.
 - You can find the .java file at this path .../src/assignments_package/ XXX.java
- 4) You must adhere to the name of classes, attributes and functions which are mentioned in the problems' definitions.
 - 5) Rename the .java file as follows: (**don't** change the first letter [G, S, B, C, M])

| | |
|--|---|
| • .java file for General Department | [G]_yourSectionNumber_yourID_yourName.java. |
| • .java file for Software Department | [S]_yourSectionNumber_yourID_yourName.java. |
| • .java file for BIO Department | [B]_yourSectionNumber_yourID_yourName.java. |
| • .java file for Cyber Security Department | [C]_yourID_yourName.java. |
| • .java file for Multimedia and AI Departments | [M]_yourID_yourName.java. |

- Watch the following video to know how to merge your code in one file.

https://drive.google.com/file/d/1AXT5_lfFCHCPMvCOJAp2TSwWycNlec/view?usp=sharing

- 6) Submit **ONLY ONE** .java file.
- 7) If you need to re-submit your assignment. You must type the assignment version number, where the version number is 2, 3, 4 etc.... as the following:

| | |
|-------------------------------------|---|
| • For General Department | [G]_yourSectionNumber_yourID_yourName_VersionNumber.java. |
| • For Software Department | [S]_yourSectionNumber_yourID_yourName_VersionNumber.java. |
| • For BIO Department | [B]_yourSectionNumber_yourID_yourName_VersionNumber.java. |
| • For Cyber Security Department | [C]_yourID_yourName_VersionNumber.java. |
| • For Multimedia and AI Departments | [M]_yourID_yourName_VersionNumber.java. |

- 8) Please use the link below to submit your assignment:

https://docs.google.com/forms/d/e/1FAIpQLSed0CRqIINLEAgQfG8SxLp065YHlly_3cAP5UML3cnwyda1dQ/viewform?usp=sf_link

As per rule 1, if your code had any errors, your assignment will not be considered. **So**, if you have any errors in your assignment, use Google to try to resolve your errors and if you didn't find the problem, please contact your TA (**maximum by Thursday “23 April 2020”**) to help you. **As per rule 7, if you didn't rename your uploaded file as mentioned above, the automation process will ignore your assignment.**

Marks will be deducted for not following the rules (-1/instruction).

Good luck
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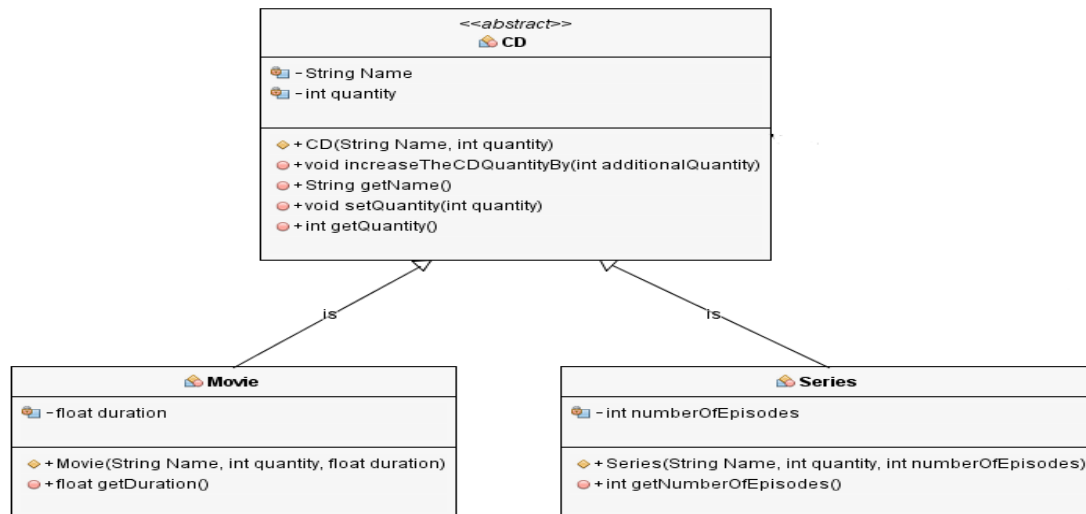
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Problem 1:

Convert the following class diagram to java code:



1. In CD class:

- CD name cannot be changed.
- IncreaseTheCDQuantity function increases the quantity of the cd by the parameter value.
- IncreaseTheCDQuantity function cannot be overridden.

2. Create the following frame (Don't create it from scratch)

- Create an ArrayList of CD as an attribute in the form. EX: `ArrayList<CD> cds=new ArrayList<>();`

The first screenshot shows the 'CD Information' window with the 'Movie' radio button selected. It contains fields for 'CD Name', 'Quantity', 'Movie Duraion' (sic), and 'Number of episodes'. The 'Movie Duraion' and 'Number of episodes' fields are disabled (grayed out). There are buttons for 'Add New CD', 'Retreive CD Info' (sic), 'Rent the CD', and 'Increase CD Quantity'.

The second screenshot shows the same window with the 'Series' radio button selected. In this state, the 'Movie Duraion' field is disabled, and the 'Number of episodes' field is enabled.

- When the frame is loaded, the radio button of movie is selected by default. The series fields are not editable and the background of them are gray.

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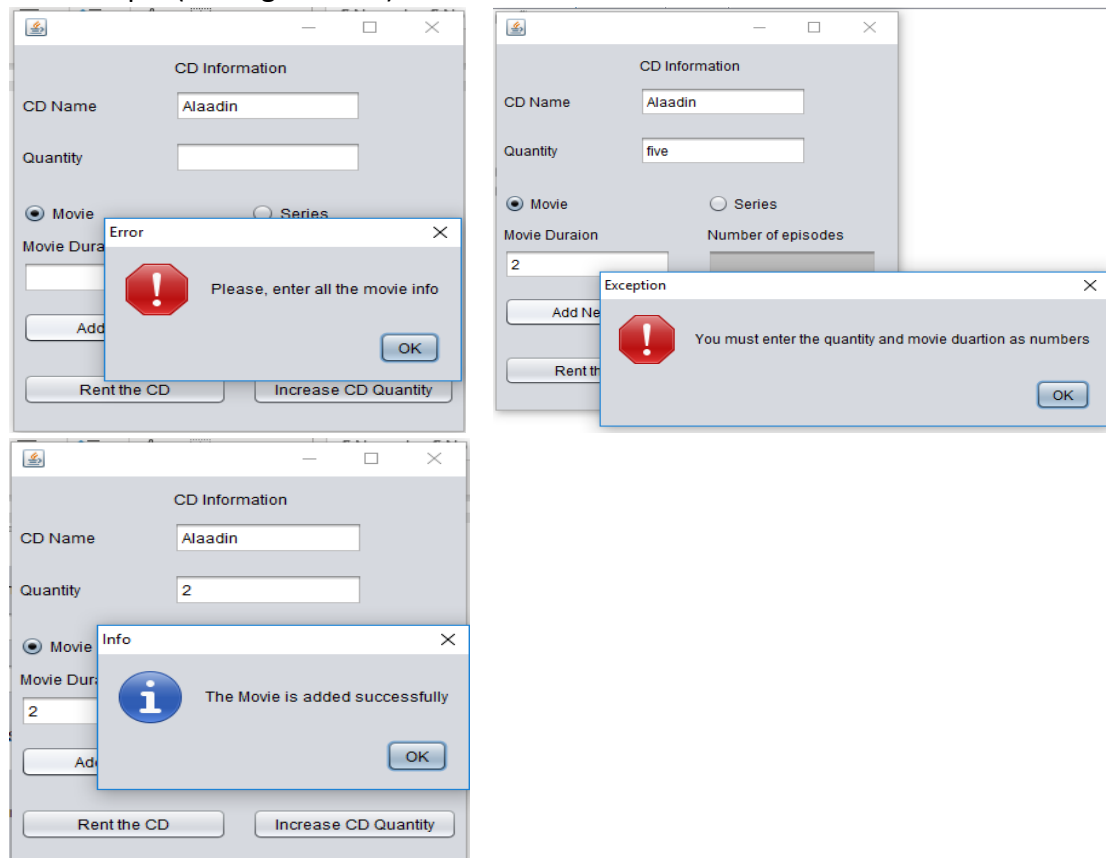
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- If the user selects the series radio button, then deactivate the movie duration text field and make the background gray. Then, activate the number of episodes field and make the background be white.
- You have 4 buttons in the form:
 - If the user presses “add new cd”
 - You must check type of cd that he wants to add into the cds’ ArrayList.
 - If the user selects a series, get the data of the series from the text fields, create and object of series cd and add it into the cds’ ArrayList and show a message for the user that the series is added successfully.
 - If the user selects a movie, get the data of the movie from the text fields, create and object of movie cd and add it into the cds’ ArrayList and show a message for the user that the movie is added successfully.
 - Note that if the user didn’t fill all the required field. Show to the user an error message.
 - You must handle all the exception that may happen. For example, if the user doesn’t enter the quantity, Movie duration and number of episodes as an integer. You must catch that exception and handle it.
 - Show a message to the user that he must enter the value as a number
 - Example (Adding a movie):



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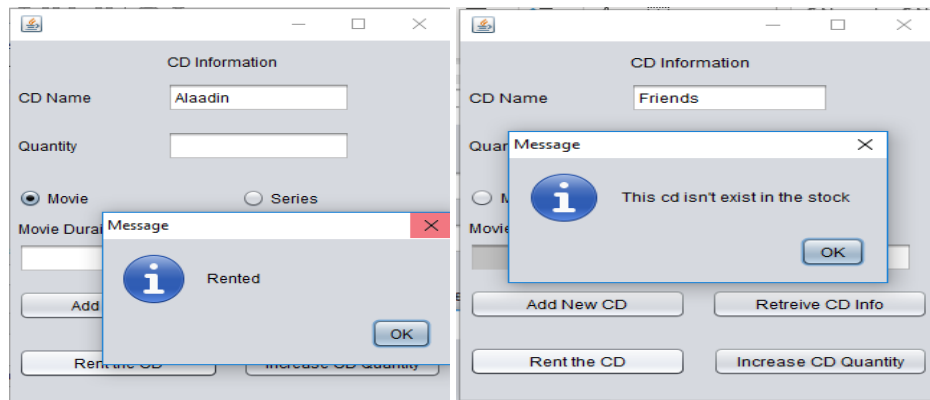
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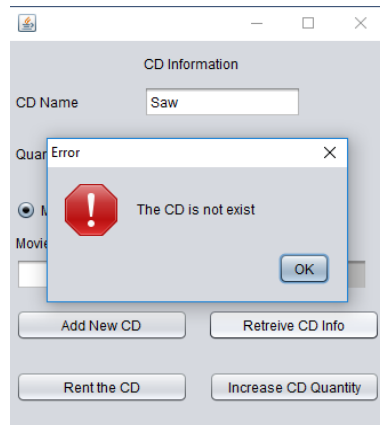


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- If the user enters CD name and presses “Rent the CD”
 - Search the cd using the entered name in the ArrayList.
 - If you find it and its’ quantity is bigger than 0, decrease it by 1 and show a message to the user that the operation is done.
 - If you find that the quantity equal 0, show a message that the cd is out of the stock.



- If the user writes a name of a CD and presses “Retrieve CD info” button
 - Search the cd by name. If you didn’t find this CD, show a message to the user that this cd doesn’t not exist.



- If you find it display the cd data.
- If the user writes a name of an exist cd and a quantity for it and press “increase CD Quantity”
 - Increase the quantity of that cd by the given quantity.

Good luck
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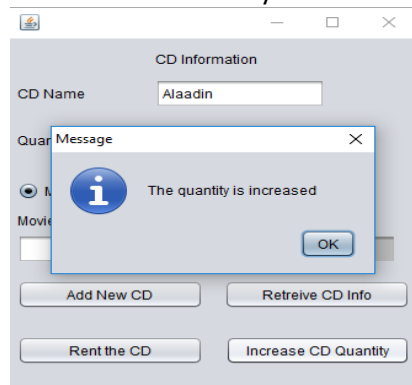
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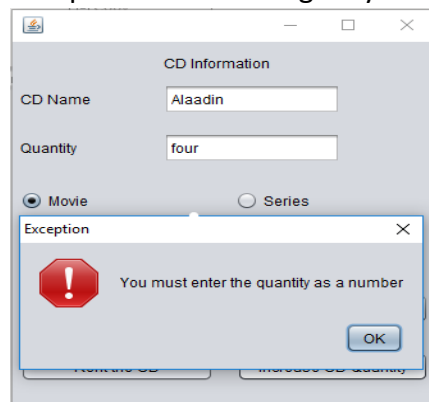
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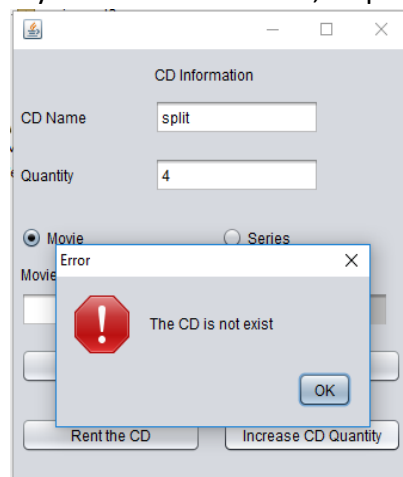
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- If the value quantity which is entered by the user isn't an integer, catch that exception and handling it by showing the following message.



- If you didn't find the cd, display a message that this cd doesn't not exist.



Good luck
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